

**To:** Way, Steven[way.steven@epa.gov]; Brobst, Bob[Brobst.Bob@epa.gov]  
**Cc:** Petri, Elliott[Elliott.Petri@WestonSolutions.com]  
**From:** Christner, Jan  
**Sent:** Sun 8/23/2015 2:30:51 AM  
**Subject:** CC48 Data  
CC48 Comparison Before and After.docx

Steve and Bob (I think that was who was on the phone today – it was hard to tell with the poor connection),

See the attached tables that show current dissolved and total concentrations and loads in Silver Creek above Silverton (CC48) compared with historically observed concentrations and loads (2009-June 2015). Both average and maximum values are shown for both current and historic conditions. I noted whether each contaminant concentration and load is typical or high compared to previously measured non-runoff concentrations and loads. I left in runoff condition averages and maximums to give perspective. Please let me know if you'd like to see the spreadsheet that was used to prepare the tables.

Coming soon.....

- Comparison of Gold King Mine (CC06) and the pond discharge water quality to CC48 water quality on the same day and next day to see if there is a correlation.

- Updated GKM and ponds discharge concentrations with data from 8/17 and updated % removal in the ponds. (Noting if there is a correlation in type of treatment, pH, and removal effectiveness).

- Presentation and evaluation of concentrations upstream and downstream of the pond outfall in Cement Creek (data just came in today).

If you like, I can compare WQ at CC48 with Baker's Bridge data on the same and next day to see if some of the slugs observed at CC48 are being seen at Baker's Bridge.

Today samples were collected that will be used in the loading analysis that will compare contributions from the 4 (or 5 if we include Silver Ledge) mines historically, in 2015 before the blowout, and currently. I'll get the evaluation ready to go except for the current so you receive this ASAP when the new analytical results come in.

Steve -- I did a lot of comparisons of the Gold King Mine concentrations and pond discharge concentrations to concentrations in various locations in Cement Creek (2009-2015) and CC water quality standards. I now need to add the dilution that would occur when the water enters Cement Creek and will send the entire evaluation at that point. Kerry reviewed the initial summary -- we were trying to keep you out of the weeds on that so will wait until it's complete to send it to you for review before it goes to the water treatment team prior to the interviews.

You got cut off when we started discussion of lime rates and the fact that the supposed lime rate isn't bringing pH up nearly high enough. I will look at the pH monitoring data tonight and see if any trends show up. I'll have to try to estimate injection rates based on the total amount used taken from the daily report from USCG so that will take a little effort. Is there a way to set up some kind of drum/hopper system using materials on site to make the lime addition easier for the ERRS guys. What an annoying job. It probably isn't worth buying a hopper system given the short-term nature of this treatment. Have you tried adding the lime further up in NF to enhance mixing or isn't that viable at this point? They often slurry the lime prior to adding to the main channel. Is that viable?

Jan

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